

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/02229

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : C07C 39/215, 69/017 US CL : 560/138; 568729 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 560/138; 568729  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CAS ONLINE-search terms: Heck Coupling, decarbonyl?, benzoyl halide, acyl halide		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/60774 A1 (BRIGHAM YOUNG UNIVERSITY) 23 August 2001 (23.08.2001), p.7, 12 and 13.	1-18 and 32-50
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Y	HERRMANN et al, Chelating N-heterocyclic Carbene Ligands In Palladium-Catalyzed Heck-Type Reactions, J. of Organometallic Chemistry, 1998, vol. 557, pages 93-96. Entire article is relevant.	1-18 and 32-50
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search 16 August 2005 (16.08.2005)		Date of mailing of the international search report 18 OCT 2005
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Bernard Dentz <i>Bernard Dentz</i> Telephone No. 571 272-1600

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## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-18 and 32-50

Remark on Protest

☐  
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

**BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING**

I. Claims 1-18 and 32-50 drawn to a decarbonylative coupling reaction.

II. Claims 19-22 and 51-54 drawn to trioxy stilbenes and their pharmaceutical compositions.

III. Claims 23-28 drawn to diacyloxybenzoyl halides which are intermediates.

IV. Claims 29-31 and 51-54 drawn to halo and/or acyloxy substituted stilbenes and their pharmaceutical compositions.

The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The compounds of Group IV are old as shown by Lautens et al as explained in the previous written restriction requirement. Thus the presumption of a corresponding technical feature which is patentable over the prior art, and thus unity of invention, no longer exists. See PCT Administrative Instructions, Annex B, pages A1-36 and 37, Paragraph (f). Thus the synthetic chemical process Group I, the final products of Groups III and IV and the chemical intermediate Group II are deemed to relate to different inventive concepts.